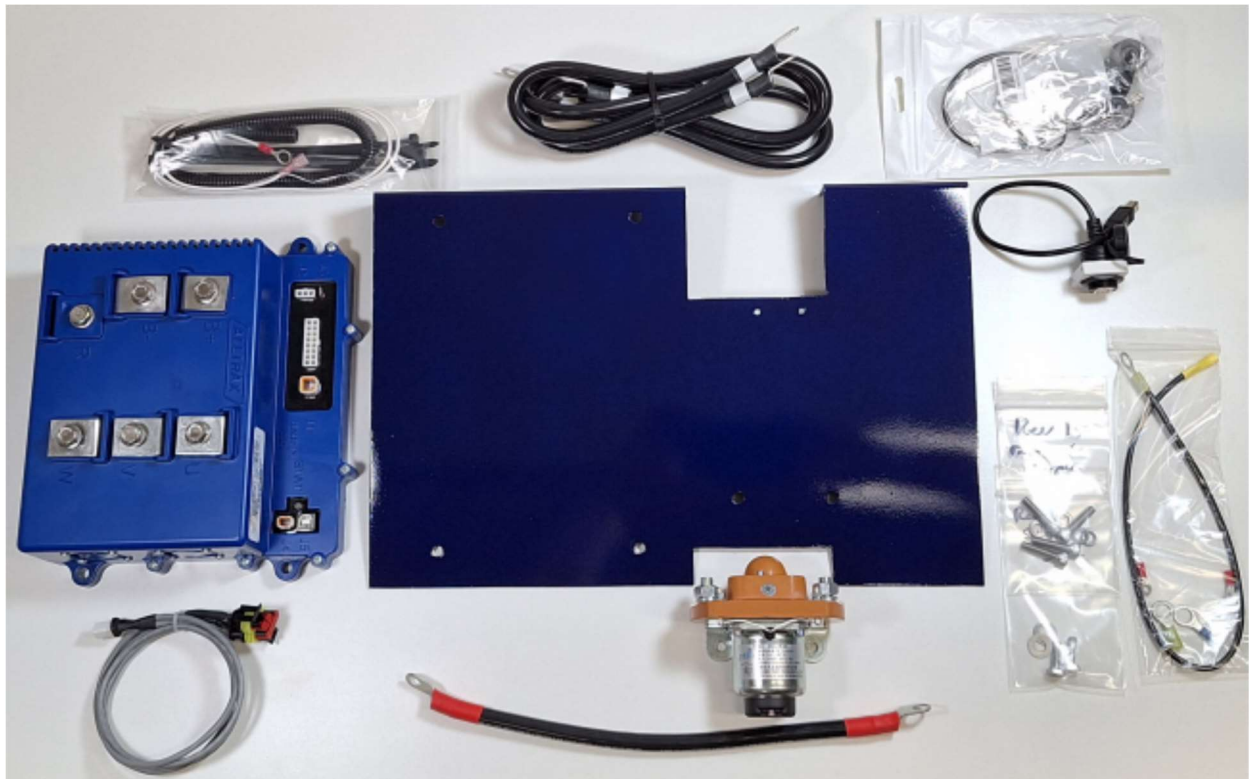




CLUB CAR PRECEDENT 2004-2008.5, ALLTRAX AC1 CONVERSION INSTALLATION INSTRUCTIONS

CLUB CAR PRECEDENT, CCT 2004-2008.5 ALLTRAX AC1 CONVERSION

BETWEEN THE BATTERY POWER PANEL



COMPLETE KIT:

- >Controller AC1
- >Panel & Hardware
- >AC Motor Ground wire
- >AC Motor 3 Phase Cables
- >2AWG Batt cable to SOL
- >10awg Charge Neg EXT
- >USB Extension cable
- (Solenoid not included)
- ...(Fuse not included)

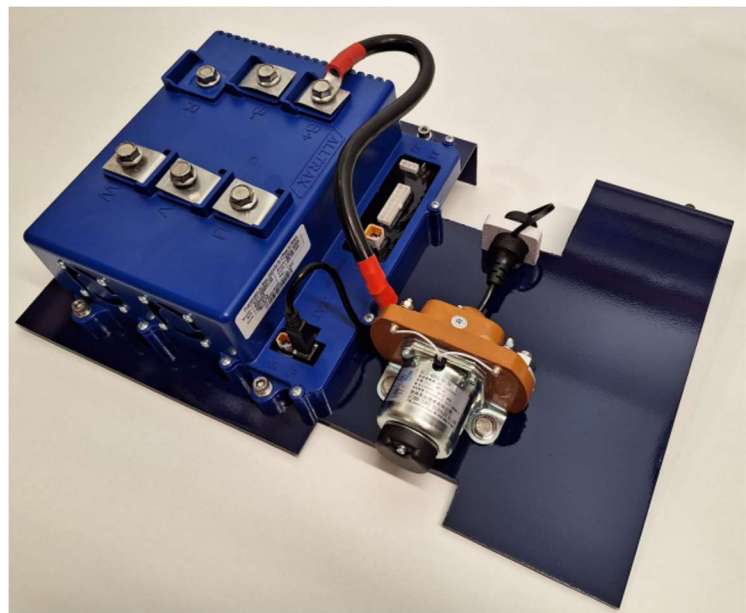


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1. Document Scope

WARNING: Follow all safety and warning recommendations in the GENERAL WARNINGS SECTION in the AC1 Operators Manual.

It is the installers responsibility to utilize proper safety glasses and other PPE safety gear using tools, equipment, or working on or around batteries and energy sources.

2. Document History

- **10/16/2023, REV A, Initial release AC1 for BETWEEN THE BATTERY, EC-11/14/2023**

3. Tools Required:

A suggested list of tools to install this kit. Not all tools may be listed.

- Socket set 3/8" drive (Metric and SAE)
- Socket set 1/4" drive with 4" extension
- SAE Allen wrench set
- Box wrench set
- Phillips screwdriver
- Flat blade screw driver
- Wire cutter
- Wire stripper
- Terminal Crimper
- Dremel or other cutoff wheel to cut plastic
- Safety glasses and PPE working on and around lead acid batteries, drilling, etc.

3.1. Parts Required (not supplied)

The conversion requires other components to complete the project, the items are not supplied but required:

- NEW SOLENOID – See AC1 Operators manual CONTACTORS (SOLENOID) Section for ratings and type.
- BATTERY FUSE, see AC1 operators manual FUSE section for ratings
- BATTERY CABLES, see AC1 operators manual WIRING section for gauge and type

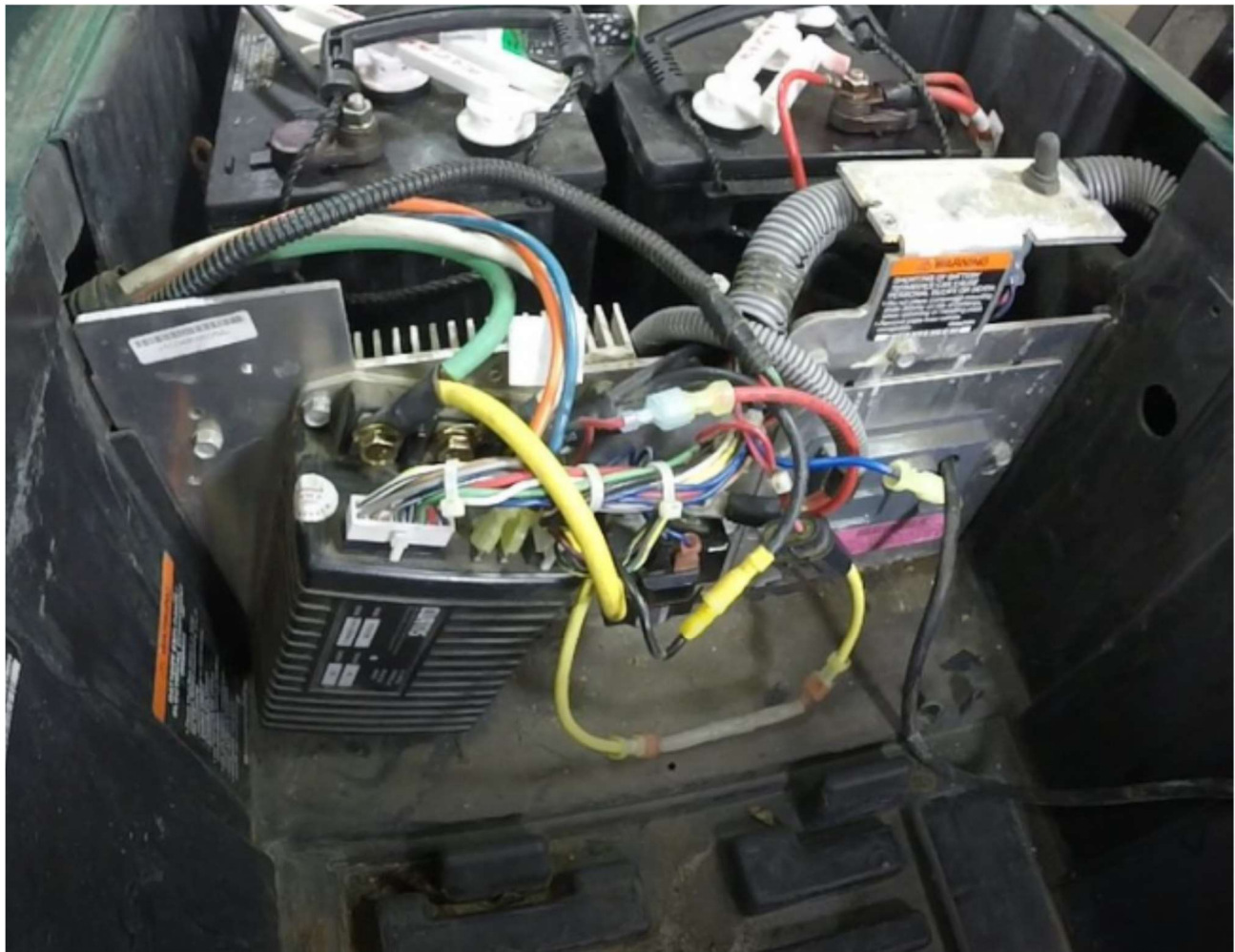
4. Club car Precedent 2004-2008.5 BETWEEN The Battery:

The Club Car Precedent, with controller power panel BETWEEN the batteries, 2004-2008.5 with DC motor factory build.

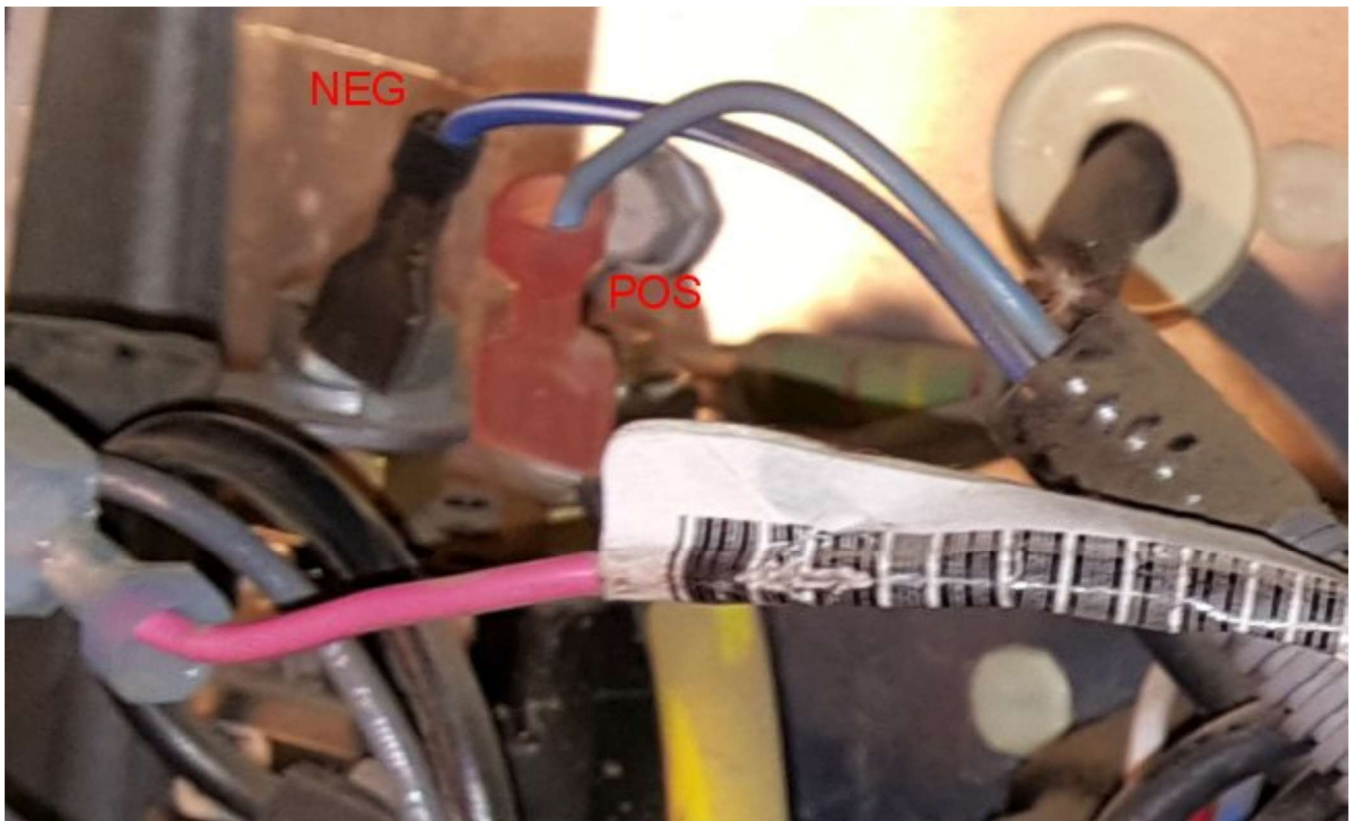
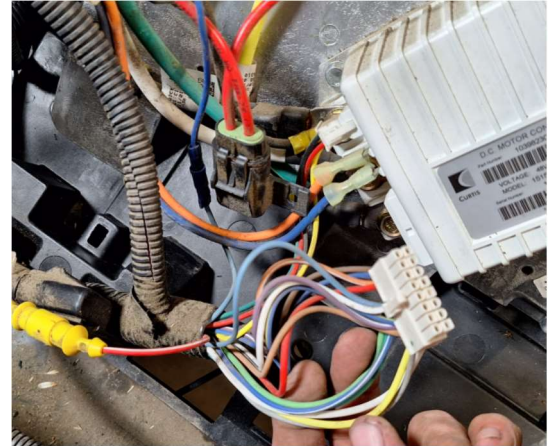
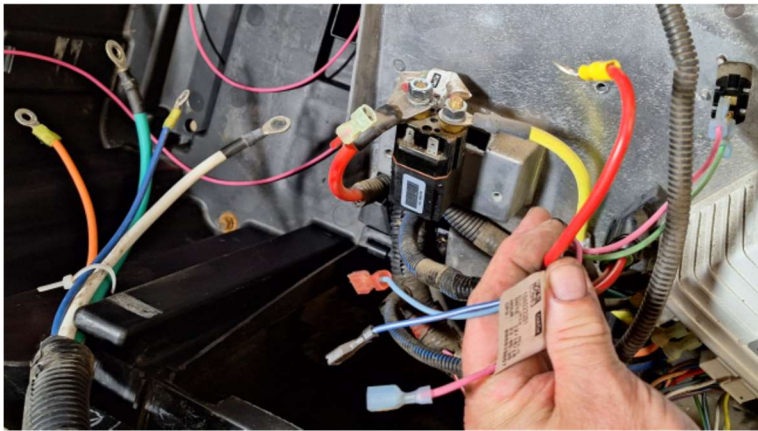
The power panel is form fitted to fit between the batteries into guide slots of the battery tub. Access to the controller and motor is from the under the seat. This panel will be replaced with the Alltrax supplied power panel for the Alltrax AC1 conversion. Passenger side batteries will have to be removed to replace the power panel and the OBC bypass will be required for aftermarket controller upgrades.

Please note the OBC Bypass instructions for warnings and safety issues when performing the bypass.

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5. Carefully unplug the 16 pin connector from the motor controller.
6. Unplug the motor SPEED SENSOR cable from the motor.
7. Remove wires from the solenoid, note the FUSED 18AWG wire assembly to the INPUT to the solenoid. It will be replaced onto the new solenoid.
8. Remove the TOW/RUN wires.
9. Remove the TOW/RUN switch, it will be reused.
10. Remove the battery positive & negative, motor wires from the motor controller.
11. Remove the Power panel from the car.

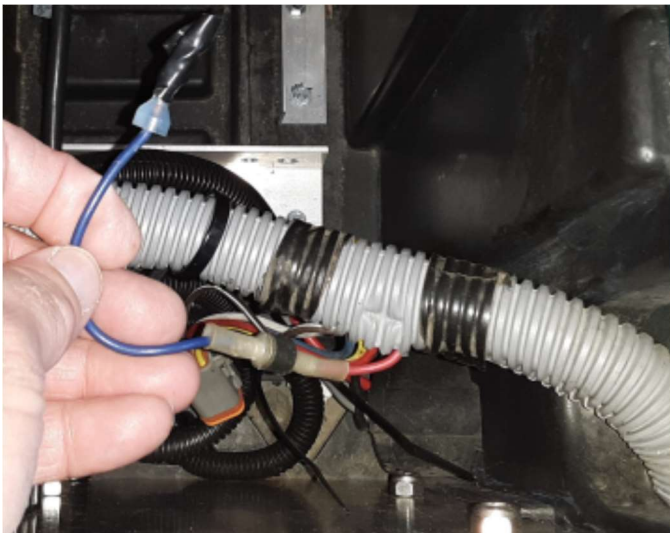


REMOVE PANEL CONTINUED:

12. Remove the TOW/RUN wires from the TOW/RUN switch. The TOW/RUN switch will be removed and will be installed onto the new AC1 panel.
13. Push the two tabs on the TOW/RUN switch and remove from panel.

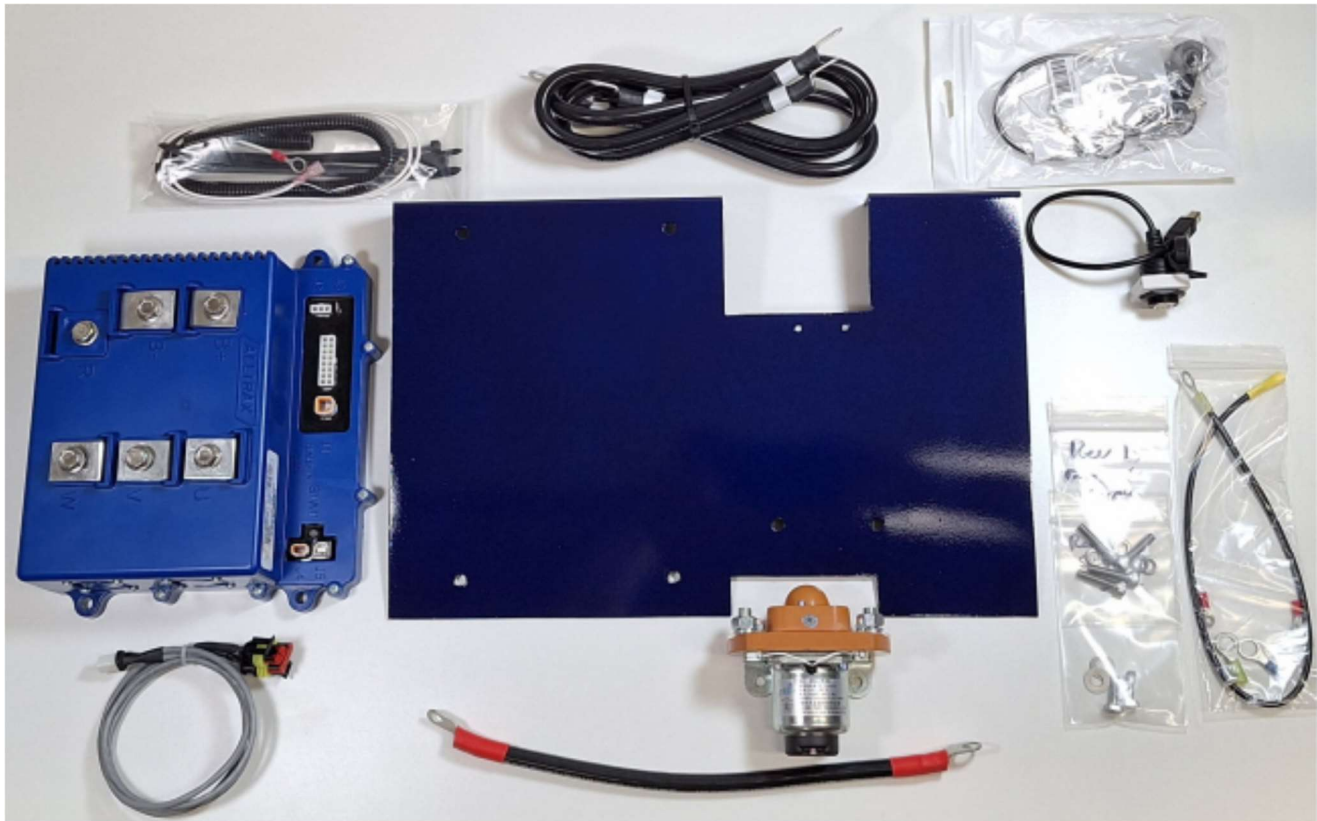


The BLUE wire from the TOW/RUN and FUSE. The OBC 6-pin connector taped out of the way and not used.



6. AC1 Panel Installation:

The AC1 Panel Installation is formed to mount the TOW/RUN switch, USB Extension cable, and Solenoid (any solenoid with 2.5" bolt spacing). The MZJ-400AMP solenoid is recommended for the AC1-48650 controller.



6.1. Install the OPTIONAL USB EXTENSION ADAPTER:

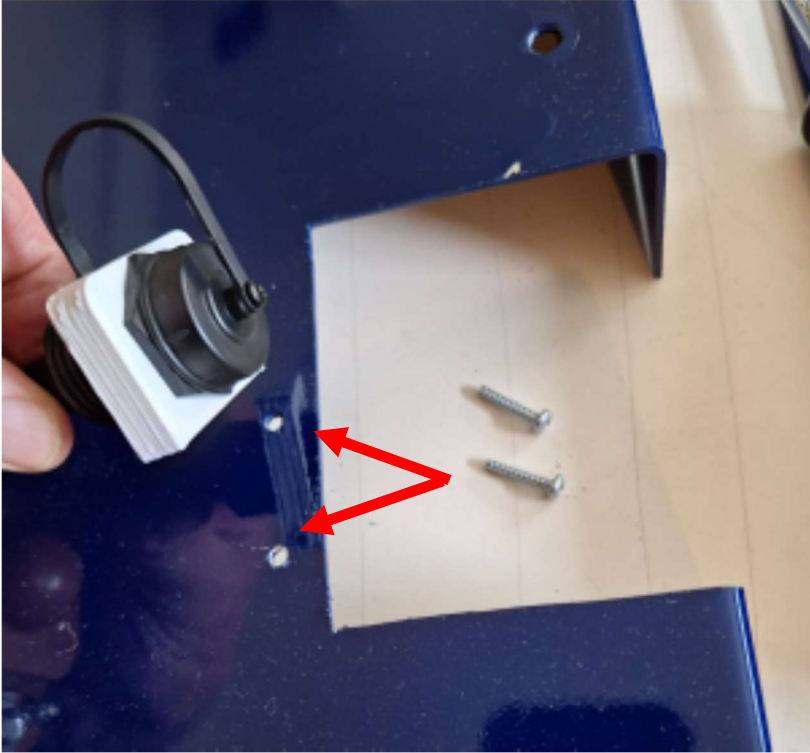
1. Locate the (2x) #6-19x3/4" PLASTIC tapping screws
2. Locate the (1x) USB Plastic PLS005 adapter.
3. Locate the USB EXTENSION. This adapter will be preassembled for installation onto the panel.
4. Install the CAP retainment ring onto the USB, it is keyed one way but ensure the CAP-CUP is facing the same side as the USB end.



CAP strap to the **ROUNDED EDGES** of
the USB adapter

USB Extension Continued:

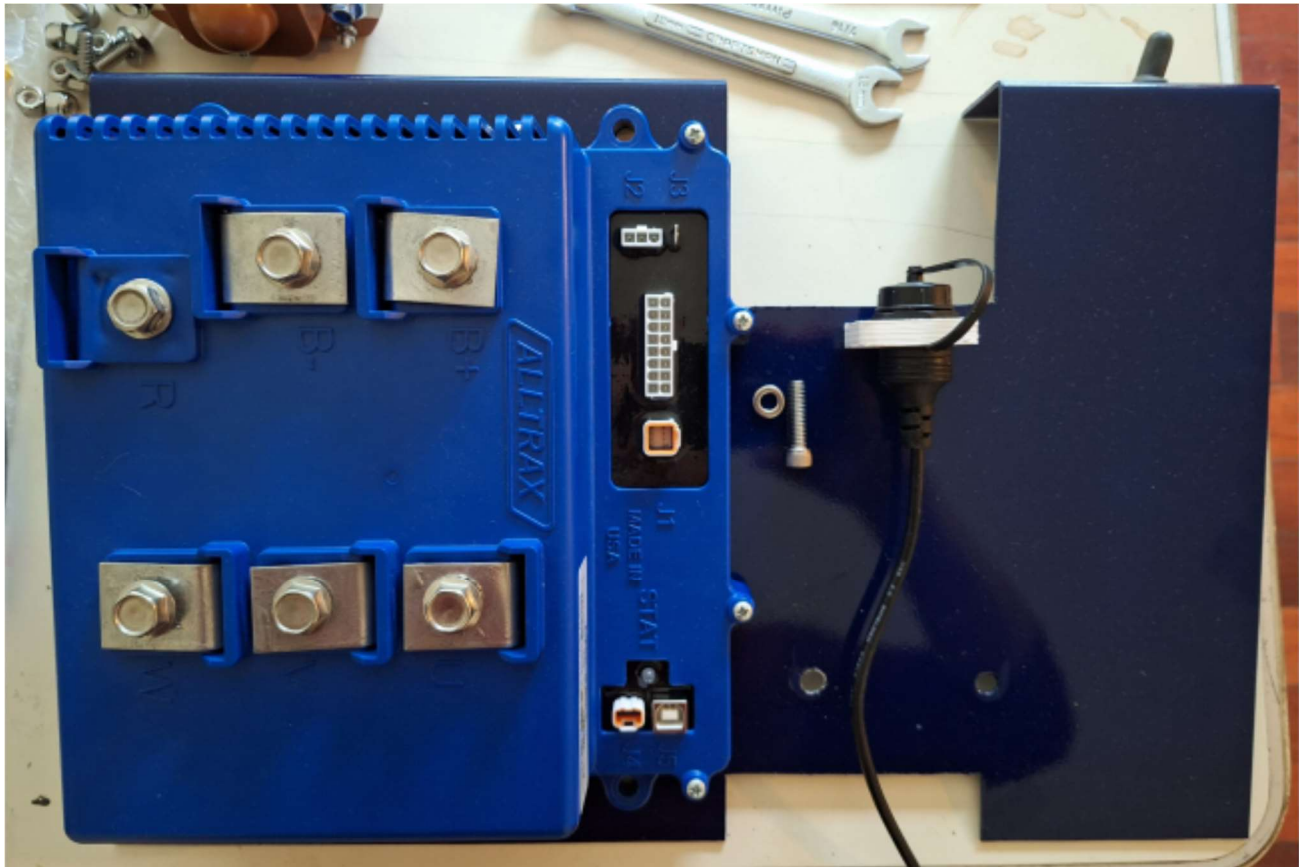
5. Align and install the USB EXTENSION adapter with the 2 supplied 6-19x3/4" Plastic cutting screws. DO NOT overtighten.
6. Install the TOW/RUN switch.



USB
ADAPTER

6.2. Install the Motor Controller

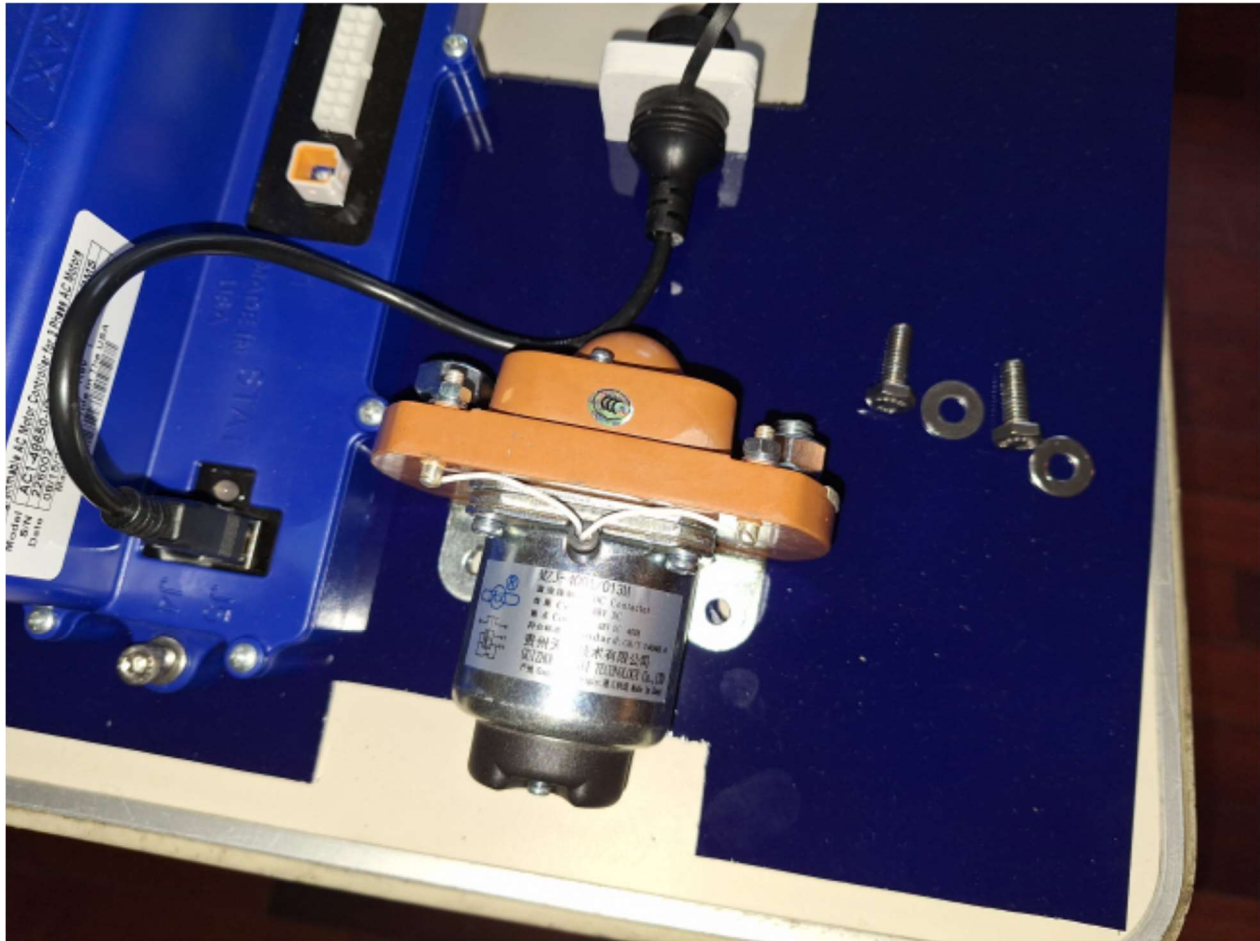
1. Place the AC1 Motor controller with CONNECTOR WELL FACING INWARD towards the USB. (The mount holes only line up one way)
2. Install the (4x) 1/4-20x1" SOCKET HEAD CAP SCREWS with (4x) SMALL OD 6mm FLAT Washers into the 4 controller mounting tabs. Do not over tighten.



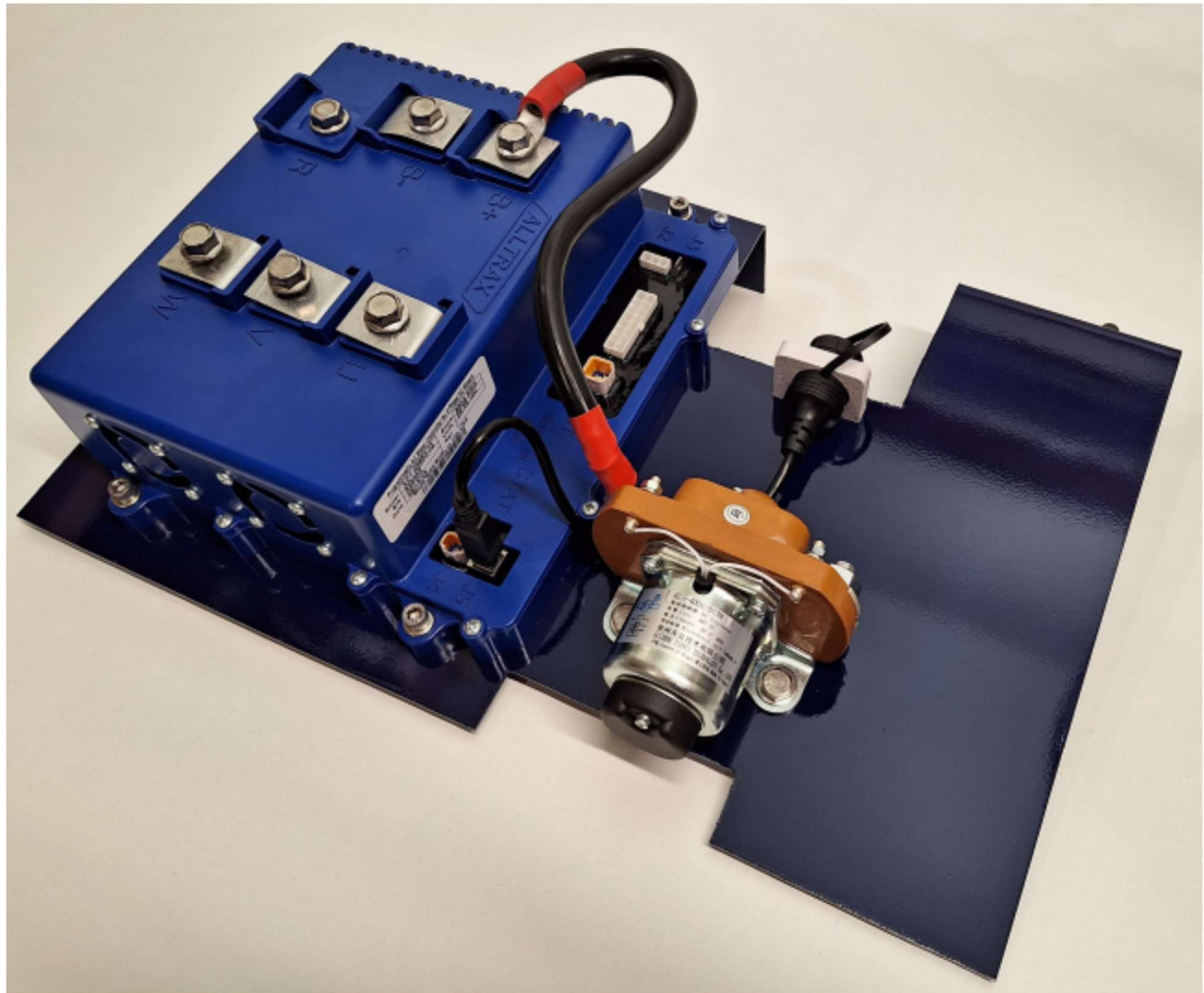
6.3. Install the SOLENOID (not included).

The Solenoid mounting holes are standard 2.5" which fit most heavy-duty HI-AMP solenoids, recommended is the MZJ400.

1. Install the new Solenoid with the terminals facing up using the two 1/4-20x1" HEX HEAD bolts with 1/4" FLAT Washers.



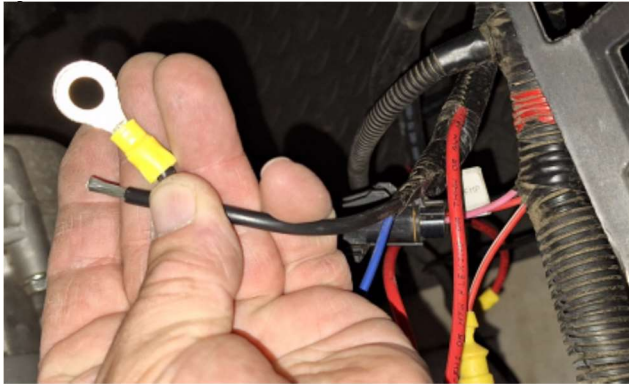
2. Install the 2AWG 12" cable with RED-RED heat shrink and install between Solenoid and AC1 B-POS
3. Loosely install the 10AWG black 13" extension, leave loose.
4. Route the USB cable between the Solenoid and the Controller.



6.4. WIRING:

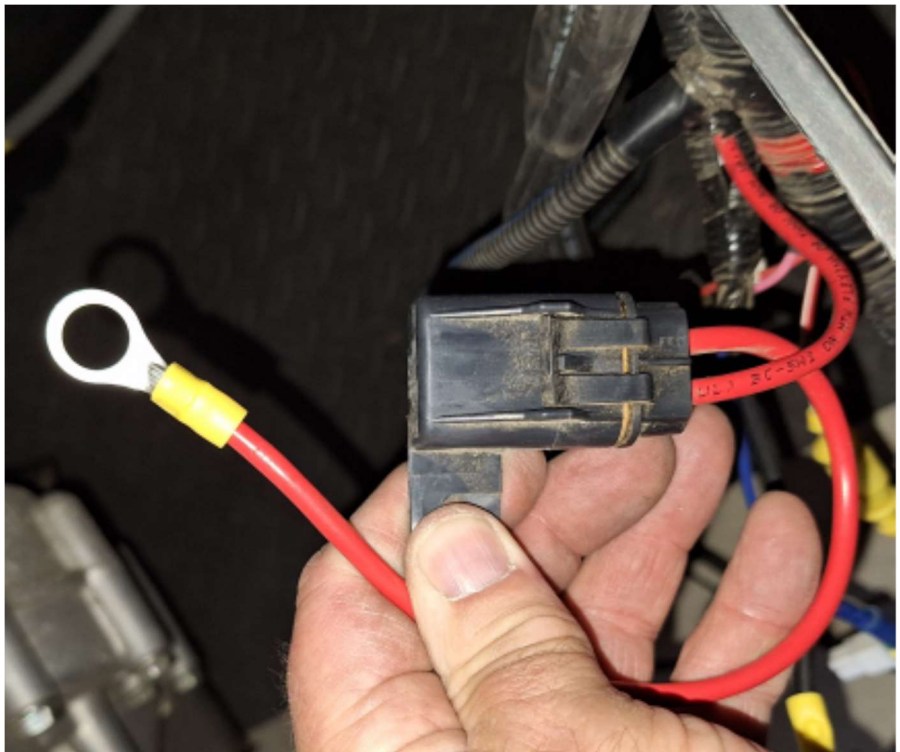
Locate the BLACK 10AWG cable with the 5/16" ring terminal. This was connected to the OEM Controller's B-NEG terminal.

1. Cut the 5/16" Ring terminal and strip ~1/4" insulation.
2. Crimp to the 10AWG 13" extension cable from the AC1 Motor controller B-NEG terminal.



Locate the RED FUSE holder for the charger port with 5/16" terminal. This was connected to the solenoid INPUT from the battery positive.

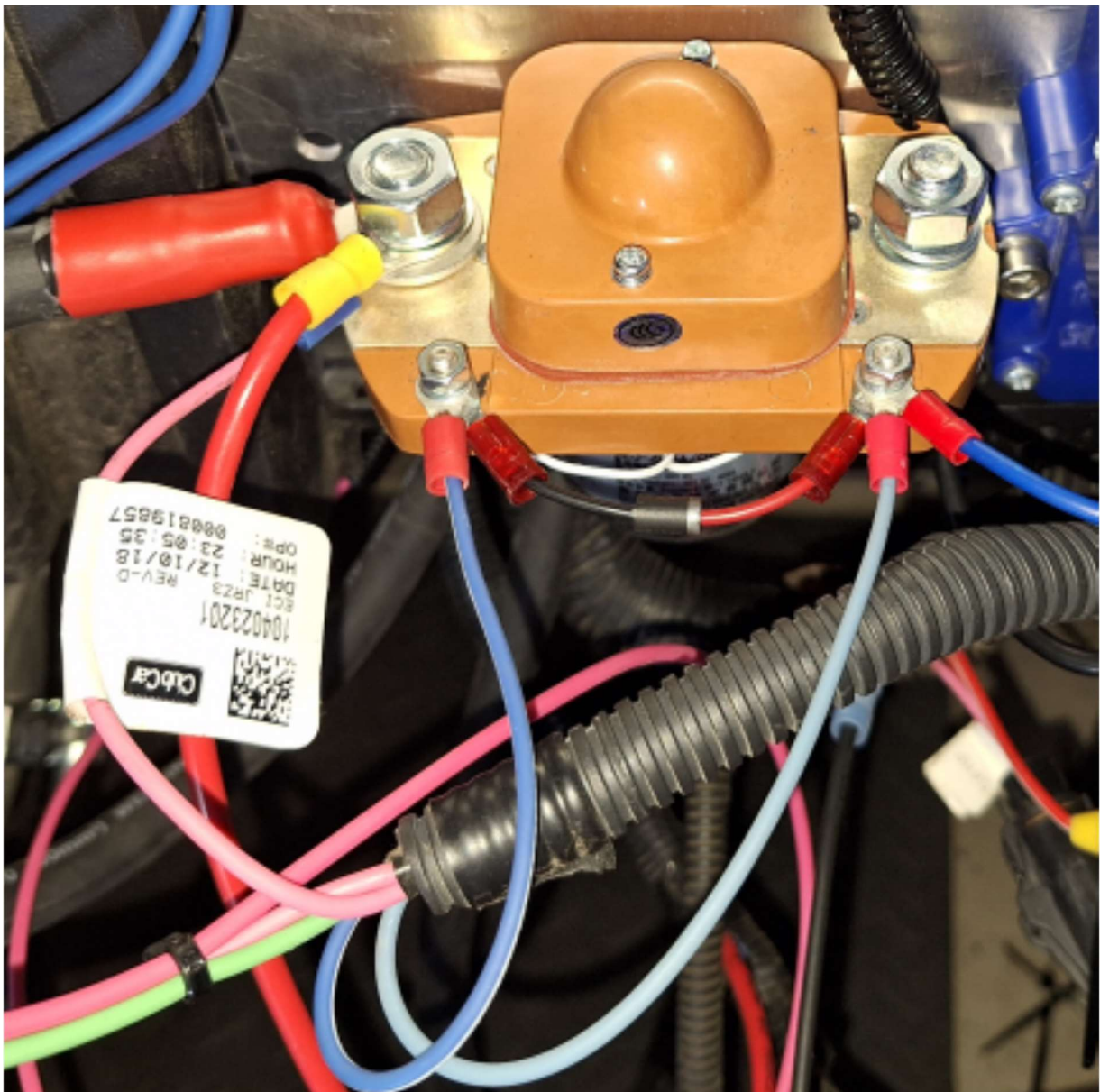
1. Cut the 5/16" Ring terminal and strip ~1/4" insulation.
2. Crimp to the YEL-3/8" RING terminal. This will connect to the SOL-INPUT coming from the battery positive.



6.5. SOLENOID WIRING

The Solenoid input has THREE wires, 2AWG BATTERY Positive cable, the CHARGER positive 10AWG fuse holder, and the PINK TOW RUN wire.

1. Connect the three cables, Battery Positive 2AWG INPUT, 10AWG fuse holder Charge cable, and the PINK TOW RUN wire (with LABEL) to the Solenoid as shown.
2. Connect the DK-BLU/WHT Stripe to the COIL-NEG (Black side of the coil suppression diode if equipped).
3. Connect the LT-BLU wire to the COIL-POS (RED side of the coil suppression diode if equipped)



SOLENOID WIRE Continued:

4. A battery fuse is required (Not supplied) an example fuse holder shown below for reference installed in a suitable location. (See AC1 controller operators manual FUSE SECTION for fuse size ratings). Connect BATTERY POSITIVE to the fuse holder.

CAUTION: DO NOT INSTALL THE FUSE YET!



5. Connect cable 5/16" ring to the fuse, the 3/8" ring to the 400amp solenoid.

For hi-corrosion or coastal environments, its recommended to spray battery terminal sealant on the two COIL wire terminals. This prevents corrosion or conduction by salty area.

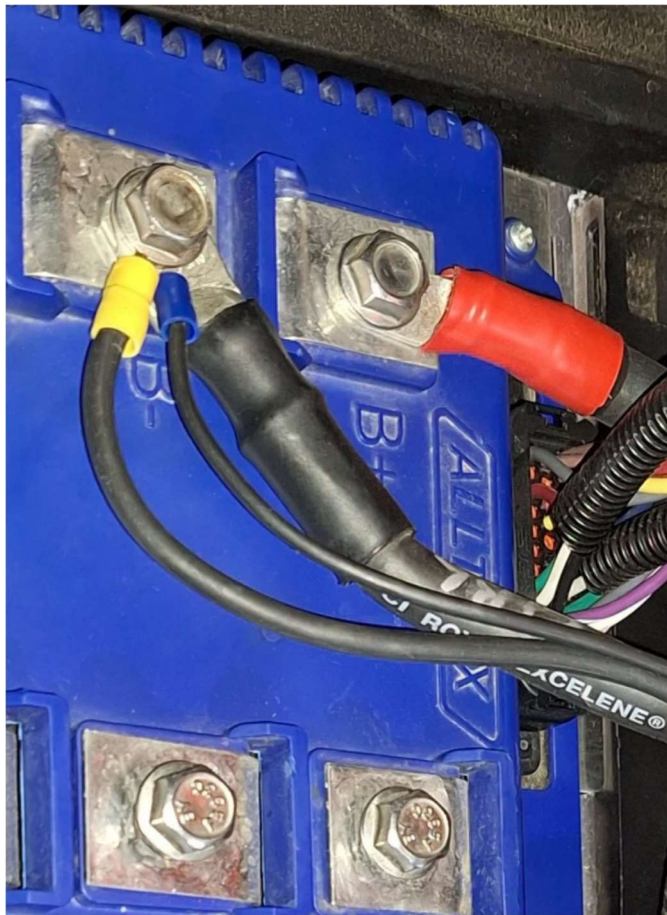
1. Connect the TOW/RUN wires PINK to Center & GREEN to Bottom.
2. Small spray of terminal protector onto the solenoid coil thermals.



6.6. AC1 CONTROLLER WIRING:

Battery Negative has THREE wires on the controllers B-NEG terminal.

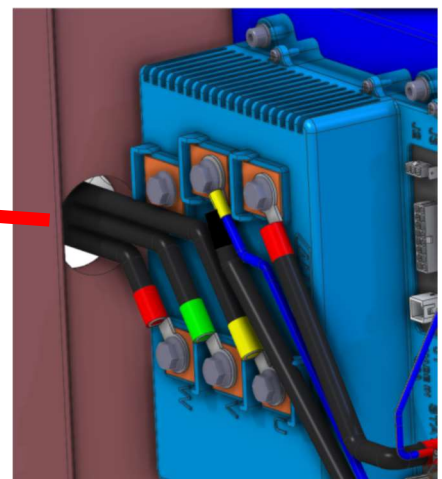
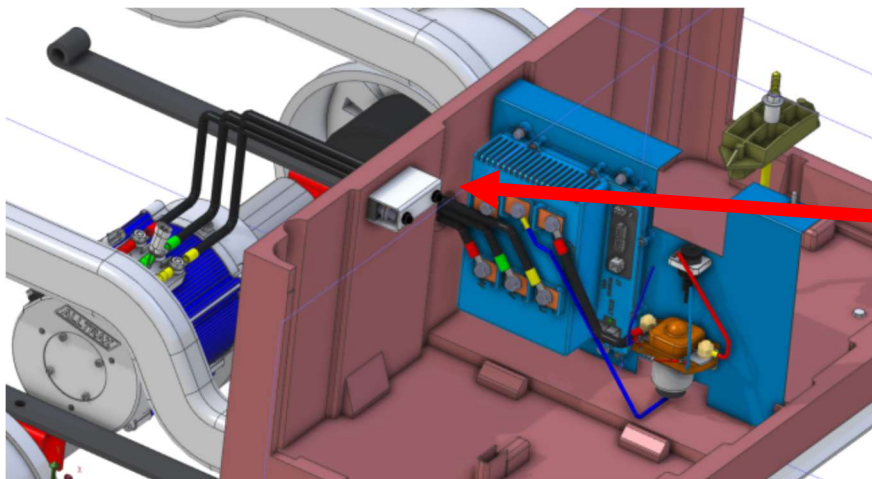
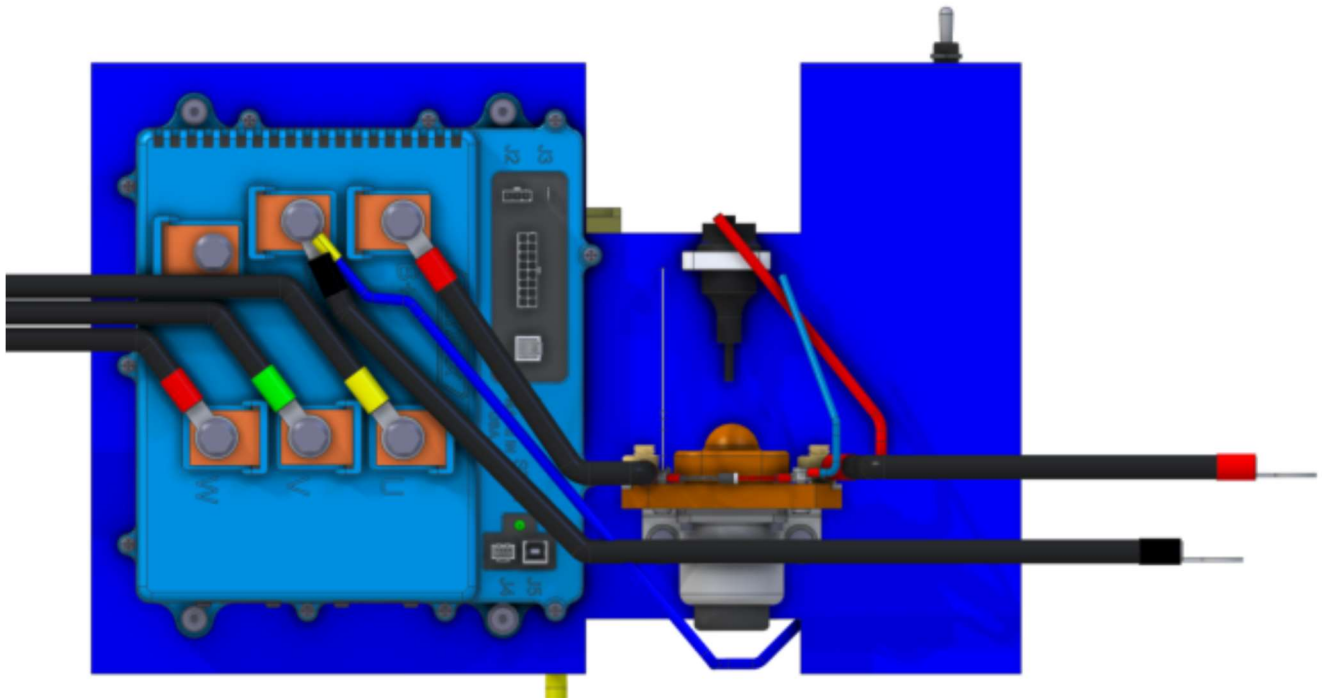
1. Connect the Black 10AWG CHARGER cable, 12AWG BLACK cart harness negative wire, and the BATT-NEG cable to the AC1-B-NEG terminal. Torque to the specifications listed in the operator's manual.
2. Connect the Controller 16 pin wire harness.



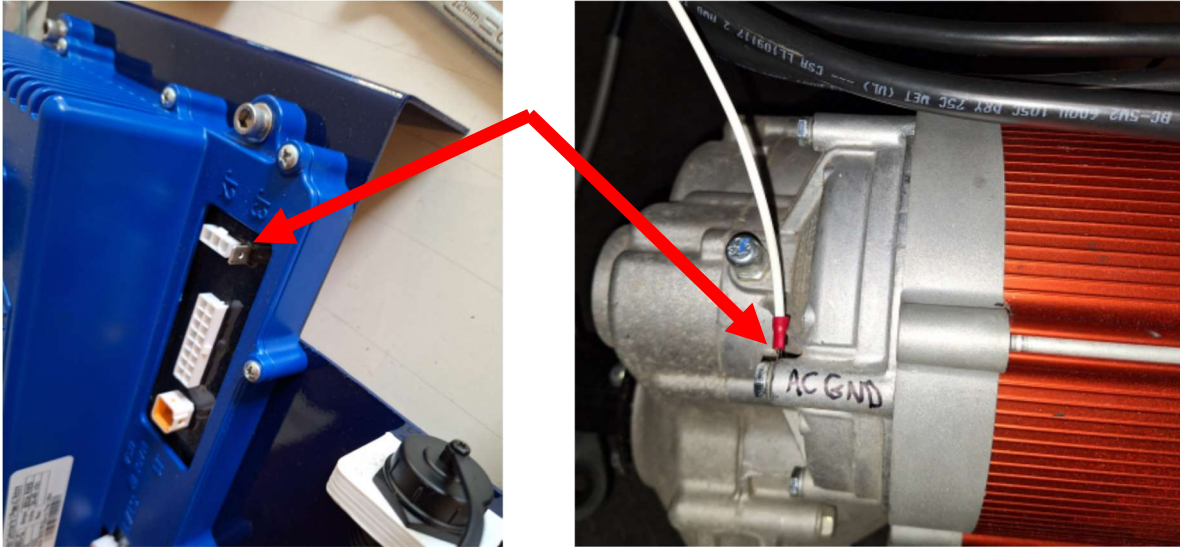
6.7. AC MOTOR CABLES:

It is assumed the DC motor and cables were removed and the AC motor installed.

1. DRILL a 2" hole in the rear of the battery tub to route the 3-PHASE AC, speed sensor, and temp sensor cables.
2. Install and connect the 3-phase motor wires as shown with U, V, W going to the correct terminals. **U=RIGHT / V=CENTER / W=LEFT** Torque bolts to specs on AC1 Manual **SPECIFICATIONS SECTION**.
3. ZIP Tie the cables using the slots in the plastic shroud as shown.



4. Connect the **AC ground wire** to the AC motor controller GND J3 faston (next to the 3-pin connector) to the AC motor using the motor mounting bolt for the AC ground wire.



5. Connect the 4-PIN SPEED Sensor plug and the TWO pin TEMP sensor plug. Zip tie the cables away from HI-POWER cables.



6. Install the proper ANN Fuse into the fuse holder. (See AC1 operators manual)
7. Measure voltages at the solenoid positive and controller B-NEG and **verify the correct voltage and polarity is available.**
8. Turn on TOW / RUN switch to RUN.
9. It is recommended to do a first test on a jack to determine direction is correct. Do not over-rev the axle, just enough to verify Forward and Reverse direction is correct. If not see the TOOLKIT manual to correct direction in software.

7. Accessories:

7.1. USB Extension Cable:

The controller is programmed, monitored, or upgraded through USB or Bluetooth. If Bluetooth option is not available (or enabled) the USB is difficult to reach on the Precedent, Tempo and Onward cars. The 3D printed USB-B cable extension kit is included to mount to the panel as shown next to the TOW/RUN switch. **Unless in use, The USB CAP should be on at all times to keep battery acid out of the connector.**



7.2. FN-KEY Personality Switch Box:

The FN-KEY (on left) included in your kit (with optional dash mount FN-DM-KEY shown on right) provides 3 personality functions: Golf Mode (10-14MPH), Street Mode (14-20MPH) or Go-Fast Mode (depending on safe operation and tire size, do not exceed manufacturers RPM limits or braking function). **See the included FN manual for more information.**

Free software on our web site – Download, Adjust, and Drive.



"Thank You Nikola Tesla for a better motor"

It was really all he asked for in his lab journal. He said what he designed was for the future, and he hoped we would remember him and his contribution.

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